

Free Trade

- The benefits of trade
- Absolute and comparative advantage

Restrictions on Free Trade: Protectionism

- Types of trade protection
 - Tariffs
 - Quotas
 - Subsidies
 - Administrative barriers
- Arguments for and against protectionism (arguments for and against free trade)
 - Arguments for: protection of domestic jobs, national security, infant industries, protect against dumping, environmental protection, overcoming BoP deficits, source of government revenue
 - Arguments against: misallocation of resources, threat or retaliation, increased costs, higher prices, reduced competitiveness

Free Trade and Protectionism

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3.1 Free Trade and Protectionism

Introduction to International Trade

The expansion of voluntary trade between nations has been a defining characteristic of the global economic system since the second World War. But peoples' view on trade were not always so liberal.

US President Lincoln once argued that...

To me that if we buy the rails from England, then we've got the rails and they've got the money. But if we build the rails here, we've got our rails and we've got our money."

Author and political Economist Charles Wheelan paraphrased Lincoln's view of trade in the following way:

"If I buy meat from the butcher, then I get the meat and he gets my money. But if I raise a cow in my backyard for three years and slaughter it myself, then I've got the meat and I've got my money."

What's wrong with Lincoln's logic?

Lincoln probably would not argue against a family buying their meat from a butcher. What he does not recognize is that what makes an economy thrive at the level of individual consumers can also help an economy thrive at the international level.

Key Questions about International Trade

Why do nations trade?

What are the gains from trade between nations?

How does a nation determine what it should produce?

What are the obstacles to free trade?

3.1 Free Trade and Protectionism

Specialization based on Comparative Advantage

Because the world's productive resources are not distributed evenly between nations, it does not make sense that every nation tries to produce the same goods. Rather, nations tend to specialize in goods for which their natural, human and capital resources are particularly appropriate to produce. These may be...

Labor-intensive goods

Examples:	Where?
Textiles	China
Low-skilled manufactured goods	Latin America Low-wage countries

Land-intensive goods

Examples:	Where?
Agricultural products	North America
Minerals	Russia
Timber resources	Australia

Capital-intensive goods

Examples:	Where?
Airplanes	Western Europe
Automobiles	Japan
Microchips	South Korea

What does your country specialize in the production of? Why?

3.1 Free Trade and Protectionism

Specialization based on Comparative Advantage

What a particular nation should produce and trade is based on what the country has a comparative advantage in the production of.

- **Comparative Advantage:** A country has a comparative advantage in production of a certain product when it can produce that product at a lower relative **opportunity cost** than another country.

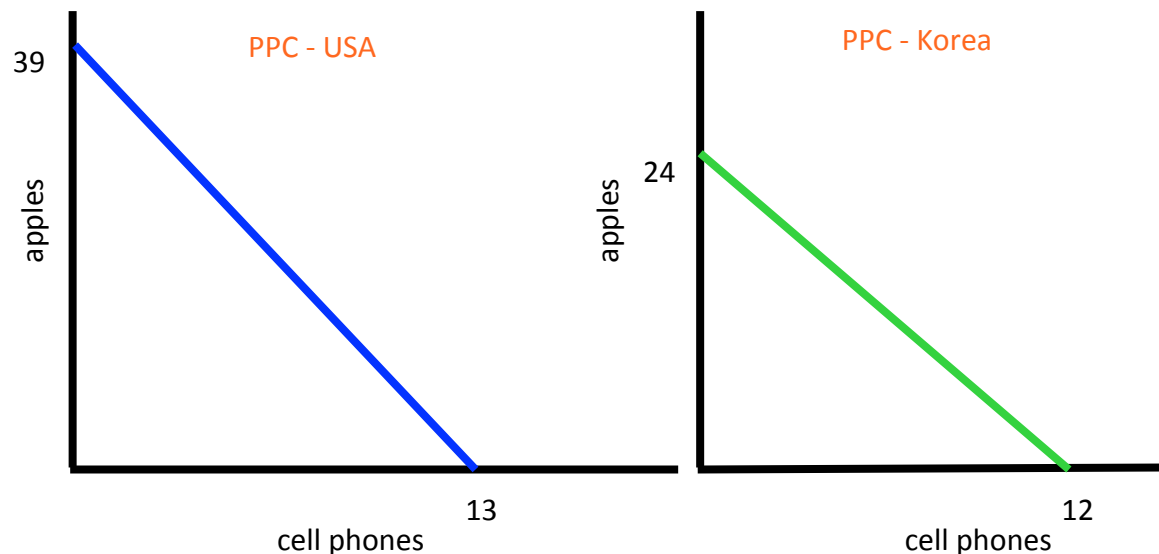
Production Possibilities Analysis: Consider two countries, South Korea and the United States.

How much do apples "cost" each country to produce?

- The US can produce *either* 39 apples or 13 cell phones.
- 1 apple = $\frac{1}{3}$ cell phone
- S. Korea can produce *either* 24 apples or 12 cell phones.
- 1 apple = $\frac{1}{2}$ cell phone

How much do cell phones "cost"?

- The US must give up 3 apples for each cell phone it produces.
- S. Korea must give up only 2 apples for each cell phone it produces.



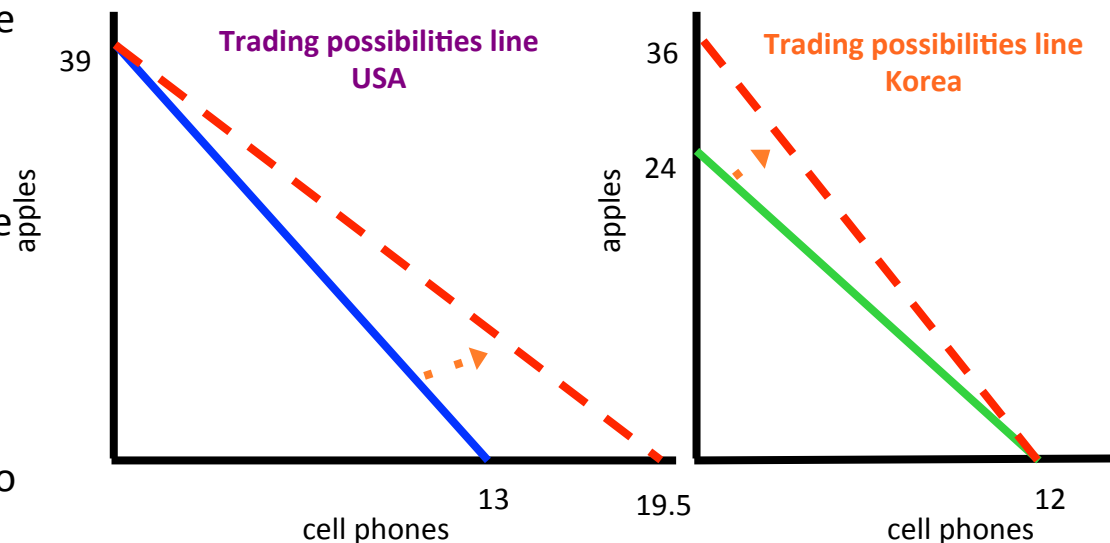
The US has a comparative advantage in apples, South Korea in cell phones

3.1 Free Trade and Protectionism

Specialization based on Comparative Advantage

Because the US has a lower opportunity cost for apples than S. Korea, and S. Korea has a lower opportunity cost for cell phones than the US, these two countries can benefit from specializing and trading with one another.

- **United States:** Specialize in apples -> trade apples for cell phones with Korea. Korea should be willing to trade 1 apple for anything up to, but not beyond, 1/2 cell phone. Before trade, 1 apple could only beget America 1/3 cell phone.
- **The US has gained from trade.**
- **South Korea:** Specialize in cell phones -> trade cell phones for apples with the US. The US should be willing to exchange up to three apples for one cell phone. Before trade, Korea could only get two apples for each cell phone it gave up.
- **South Korea has gained from trade.**



The red dashed lines represent the maximum amount of output the two countries could hope to consume as a result of trade with one another. This is the trading possibilities line. Trade allows each nation to consumer beyond its own production possibilities.

Specialization based on Comparative Advantage

Specialization is defined as *“the use of the resources of an individual, a firm, a region, **or a nation** to concentrate production on one or a small number of goods and services.”*

- What a person, company or country should specialize in depends on the task for which it has the lowest opportunity costs.
- Countries should specialize based on the products for which they have a comparative advantage

Terms of trade: Terms that are mutually beneficial to the two countries in trade. Where the trade leaves both countries better off than they were originally.

Gains from Specialization and Trade: Specialization based on comparative advantage improves global resource allocation. Each country would result in a larger global output with the same total inputs or world resources and technology.

Specialization and trade based on comparative advantage increases the productivity of a nation's resources and allows for greater total output than would otherwise be possible.

3.1 Free Trade and Protectionism

Specialization and Trade based on Production Possibilities Tables

The PPC provides a graphical means of displaying a nation's potential output of two goods. The same information can be shown in a table as well. These tables come in two types, Output and Input tables.

Output Table

Reading the table: Given a fixed amount of resources, Mexico and the USA can choose between the following alternatives.

	Soybeans	Avocados
Mexico	15	60
USA	30	90

Input Table

Reading the table: In order to produce one ton of output, Mexico and the USA must use the following amount of resources. (in acres of land)

	Soybeans	Avocados
Mexico	16	8
USA	8	6

How to determine specialization and trade based on a table

1. Identify the opportunity costs of soybeans and avocados in Mexico and the USA
2. The countries should specialize in the one for which they have the lower opportunity cost.
3. Cross multiplication trick. (maximize output and minimize inputs)


3.1 Free Trade and Protectionism

Specialization and Trade based on Production Possibilities Tables

Based on the tables below, Mexico has the comparative advantage in avocados and the US in soy beans. The two countries should specialize and trade with one another based on these advantages.

Output Problem

	Soybeans	Avocados
Mexico	15	60 = 1800
USA	30	90 = 1350

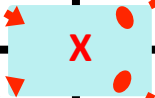


For an output problem, simply cross multiply and then choose the highest level of output.

Output is maximized when the US specializes in soybeans and Mexico in avocados.

Input Problem

	Soybeans	Avocados
Mexico	16	8 = 64
USA	8	6 = 96



For an input problem, cross-multiply and then choose the combination that uses the least amount of inputs.

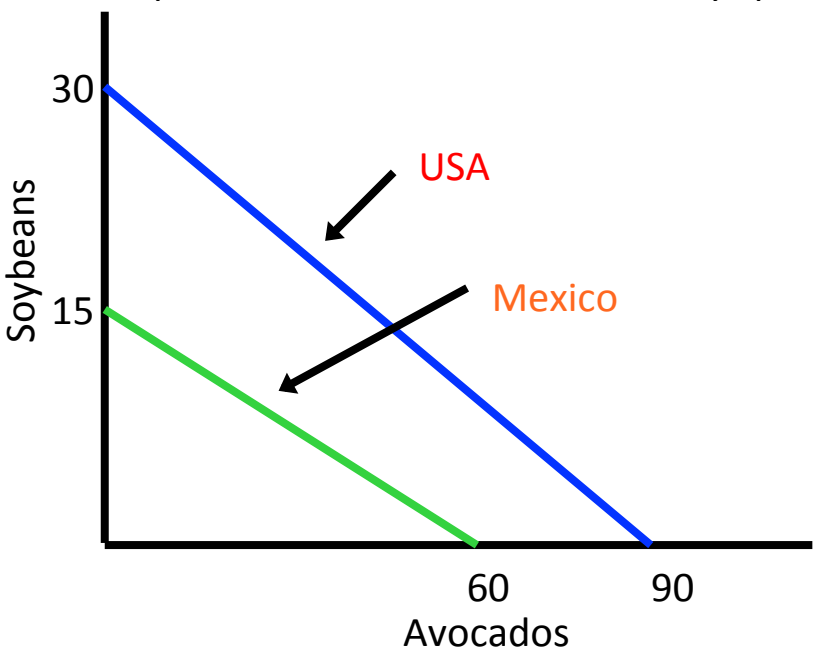
Inputs are minimized when the US specializes in soybeans and Mexico in avocados.

3.1 Free Trade and Protectionism

Absolute Advantage versus Comparative Advantage

Having put the data into a PPC, it is clear that the US is, in fact, better at producing BOTH avocados and soybeans. The US has an **absolute advantage** in both goods

- **Absolute Advantage:** When a nation can produce a certain good more efficiently than another nation.
- **How is this different from comparative advantage?** Having an absolute advantage in a product, as the US does in both soybeans and avocados, does not mean a country has a lower opportunity costs in both products. The US should still only specialize in what it has a *comparative advantage in*.



	Soybeans	Avocados
Mexico	15	60
USA	30	90

Soybeans	Avocados
In US: $1s = 3a$	In US: $1a = 1/3s$
In Mexico: $1s = 4a$	In Mexico: $1a = 1/4s$

3.1 Free Trade and Protectionism

*International Trade
Video Lesson*



DETERMINING COMPARATIVE ADVANTAGE USING PPCS
– WORKED SOLUTIONS TO AP FREE RESPONSE

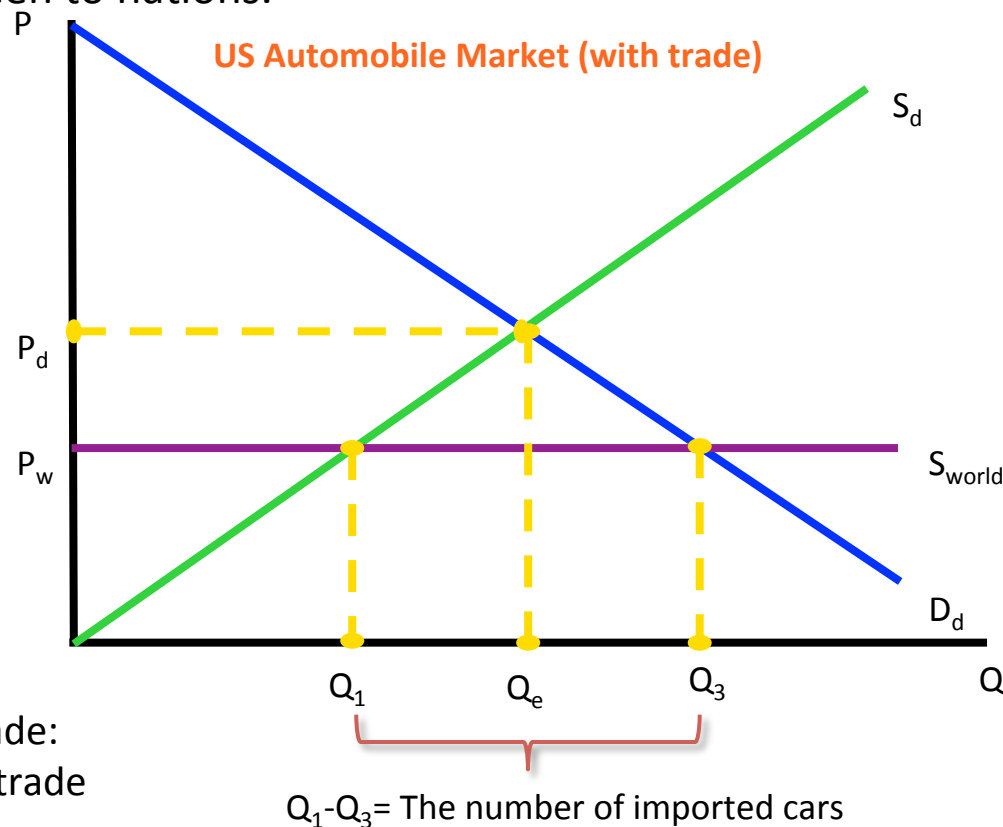
3.1 Free Trade and Protectionism

The Gains from Trade in a Supply and Demand Diagram

The gains from free trade can be illustrated in a diagram showing the supply and demand of a particular good that is being traded between two nations.

The graph shows the market for cars in the United States under free trade:

- **S_d**: The domestic supply of cars
- **D_d**: The domestic demand for cars
- **P_d and Q_e**: Equilibrium price and quantity before free trade
- **S_{world}**: The world supply of cars
 - Since the US is just one of nearly two hundred countries buying cars, it can buy as many as it wishes without affecting the price, so world supply is perfectly elastic
- **P_w**: The world price of cars
- **Q₁**: The domestic quantity supplied with trade:
- **Q₃**: The domestic quantity demanded with trade



3.1 Free Trade and Protectionism

The Gains from Trade in a Supply and Demand Diagram

There are winners and losers from free trade in the US automobile market, but overall society is better off than it would be without trade.

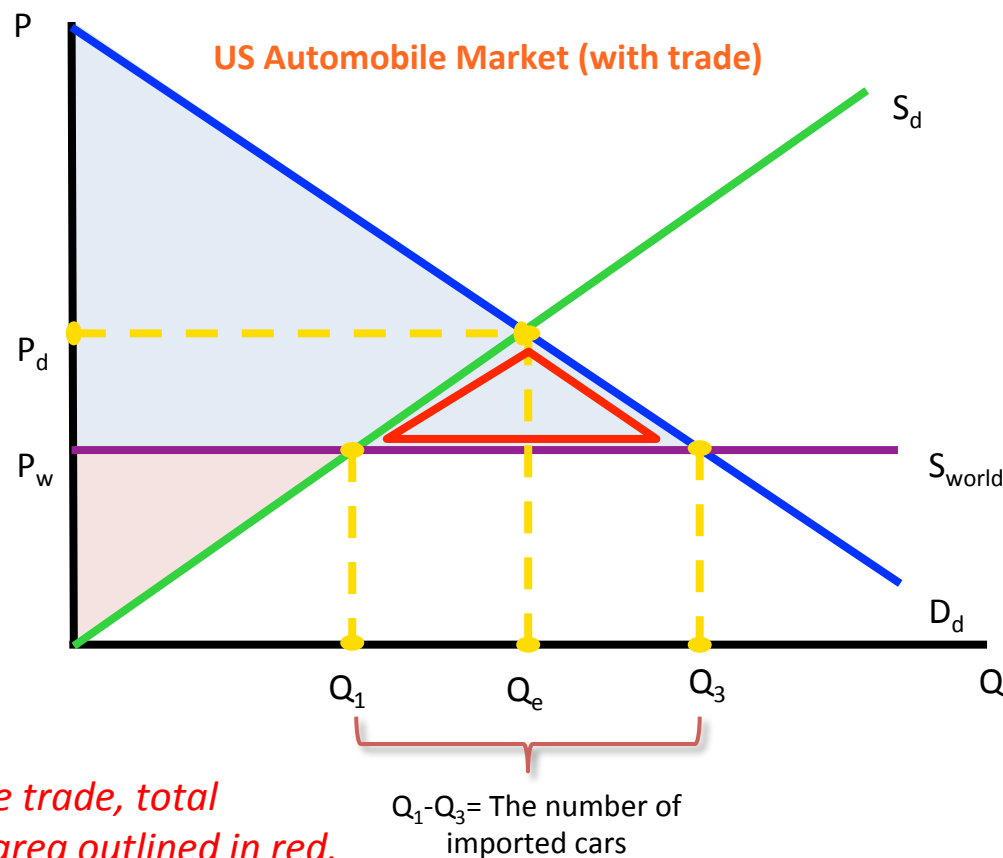
The losers from free trade:

- Notice that Q_1 is less than Q_e . This means that *fewer cars are produced in the US* than would be without trade. Domestic producers suffer due to the lower prices of imported cars. Domestic producer surplus (the red triangle) is less than it would be without trade.
- Workers in domestic factories may lose their jobs, as output of American cars declines

The winners from free trade

- Q_3 is greater than Q_e , indicating that consumers buy more cars after trade than they would without trade.
- P_w is lower, indicating that consumers enjoy a lower price and more consumer surplus (the blue triangle) than before trade

Effect of trade on total welfare: Because of free trade, total welfare in the car market has increased by the area outlined in red.



Introduction to Protectionism

Despite the gains from trade we have explained and illustrated using both PPCs and supply and demand diagrams, almost every country still chooses to engage in *protectionism*.

Protectionism: The use of tariffs, quotas, subsidies or administrative measures aimed at making domestic producers more competitive with foreign producers by limiting the quantity of imports into the nation.

- **Tariffs:** Taxes placed on imported goods, services or resources. A tariff increases the cost of imported goods, reducing their supply and causing the price paid by domestic consumers to rise. Therefore, the domestic quantity supplied is greater than it would be without the tariff.
- **Quotas:** A physical limit on the quantity of a good, service or resource that may be imported. A quota on a particular good will result in a shortage of imports in the short-run, which drives up the domestic price and leads domestic producers to increase their quantity supplied.
- **Protective subsidies:** Payments from the government to domestic producers meant to either increase domestic consumption of their goods or to promote the export of their goods to the rest of the world. The subsidy increases the domestic supply of a good and therefore increases the quantity consumed by domestic consumers.

All forms of protectionism lead to a misallocation of society's resources and ultimately reduce total welfare. However, there are several arguments for protectionism that must be evaluated

3.1 Free Trade and Protectionism

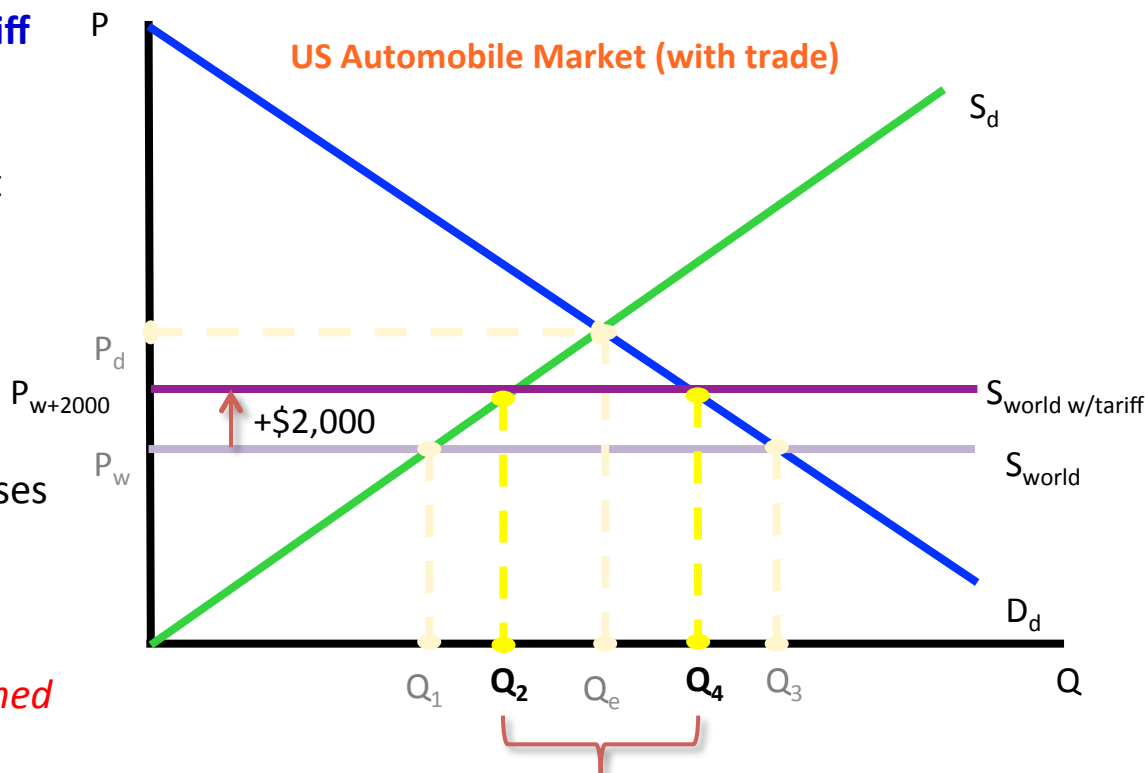
Protectionist Tariffs

A tariff on an imported good reduces its supply and drives the price up for domestic consumers and producers. Consider the market for cars in the United States once again.

Assume the US government places a tariff of \$2,000 on all imported cars.

- The world supply shifts *up* by the amount of the tariff. All cars now cost \$2000 more
- The domestic quantity supplied increases from Q_1 to Q_2
- The domestic quantity demanded decreases from Q_3 to Q_4
- The quantity of cars imported decreases from $Q_1 - Q_3$ to $Q_2 - Q_4$

The tariff leads to more cars being produced domestically, but fewer consumed and higher prices for consumers!



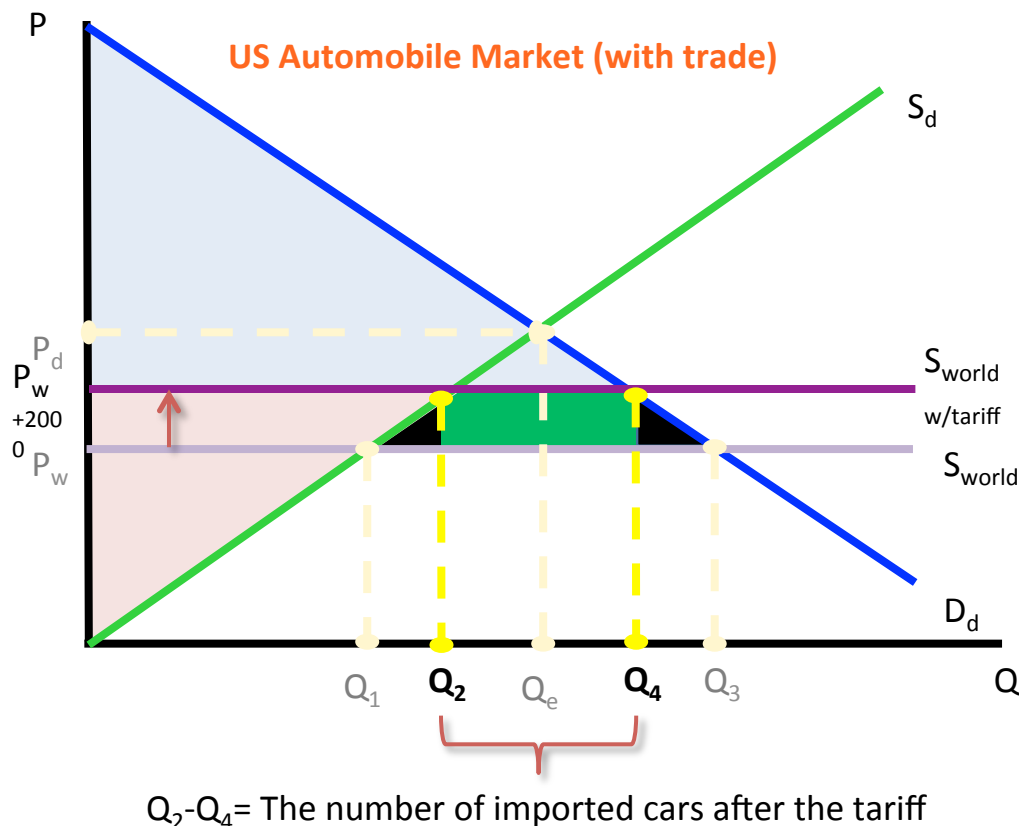
3.1 Free Trade and Protectionism

Protectionist Tariffs

As we showed on the previous slide, tariffs cause the price of the taxed good to rise and domestic output to increase. But to evaluate the overall effect of the tariff, more factors must be considered.

Effect of the tariff on all stakeholders

- **On consumers:** Consumer surplus (the blue triangle) is now a smaller area, since the price is higher and quantity lower.
- **On domestic producers:** Producer surplus (the red triangle) is now greater, since domestic producers sell more cars at a higher price
- **On foreign producers:** Foreign producers are worse off. They sell fewer cars and earn less revenue ($[Q_2 - Q_4] \cdot P_w$) than they did before the tariff
- **On the government:** The government levying the tariff earns revenue equal to the green rectangle.
- **On total welfare:** There is a *net loss of total welfare* equal to the two black triangles. Society as a whole is *worse off* because fewer cars are consumed but more are produced by the relatively inefficient domestic producers



3.1 Free Trade and Protectionism

Protectionist Tariffs
Video Lesson



[THE EFFECTS OF A TARIFF ON IMPORTS](#)

3.1 Free Trade and Protectionism

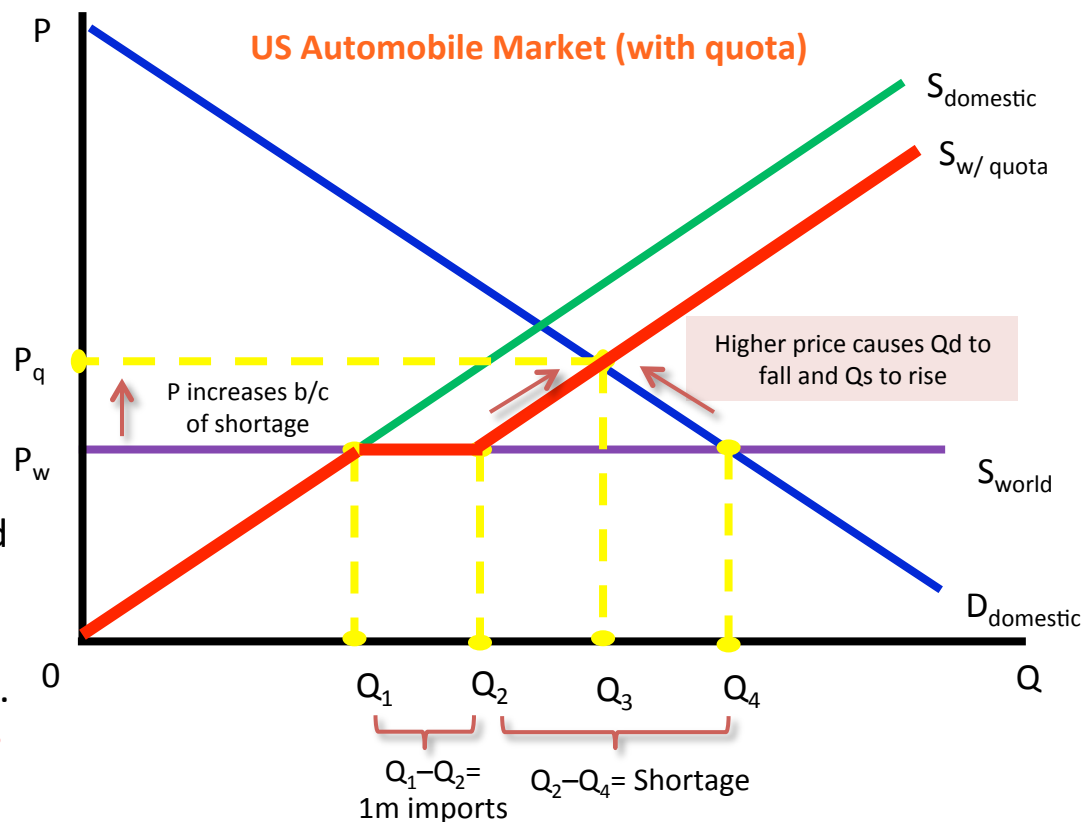
Protectionist Quotas

A quota is a physical limit on the quantity of a particular good (or goods) that may be imported. Assume that rather than taxing imported cars, the US government places a quota of just 1 million imports per year.

The effects of the quota:

- Before the quota, Q_1 - Q_4 cars were imported. After the quota, only Q_1 - Q_2 cars can be imported.
- The quota creates a shortage at the world price of Q_2 - Q_4 cars.
- Because of the shortage, the price of cars rises from P_w to P_q .
- At the higher price, domestic quantity supplied increases from Q_1 to Q_2 - Q_3 .
- Total quantity demanded at the higher price is Q_4 , but Q_1 - Q_2 will be imported.

The new domestic supply curve is the red line

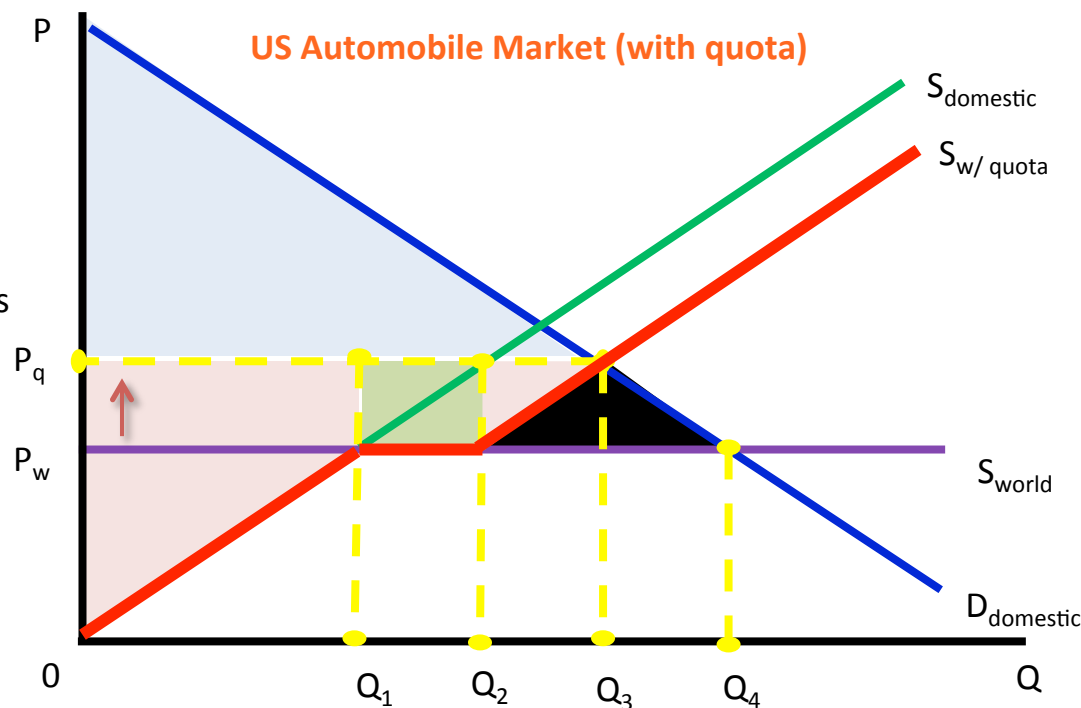


Protectionist Quotas

A quota on imported cars caused the price to rise and the domestic quantity supplied to increase. But to determine the net effect of the quota we must examine its effect on various stakeholders.

Effect of the quota on all stakeholders

- **On consumers:** The quantity of cars falls and the price rises, so consumer surplus is reduced to the blue triangle
- **On domestic producers:** Output and price have increases, so producer surplus increases to the two red areas (above the domestic supply curve and below the price)
- **On foreign producers:** There will be fewer imports (only Q_1 - Q_2) but they will sell for higher prices, so there is now some foreign producer surplus (the green area) but overall revenues fall for foreign producers.
- **On the government:** Unlike a tariff, no revenues are collected from a quota.
- **On total welfare:** Total welfare decreases due to fewer cars being sold and more being produced by relatively inefficient domestic producers. The black triangle is the area of welfare loss



3.1 Free Trade and Protectionism

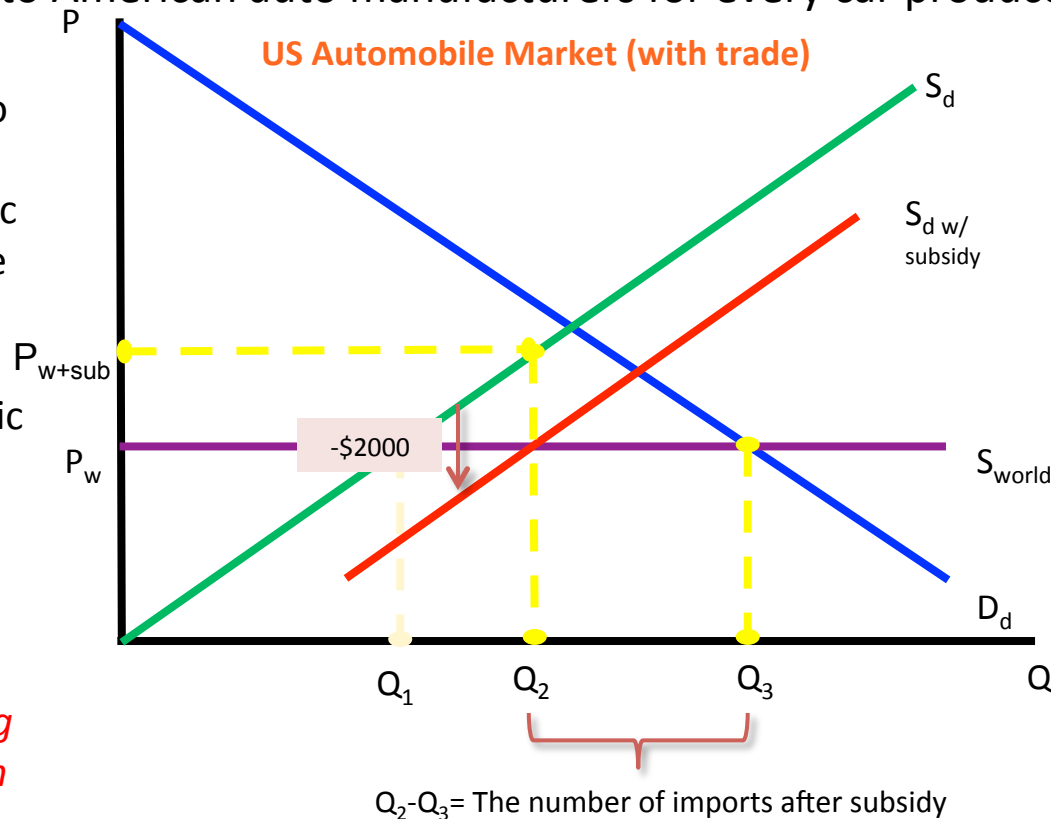
Protectionist Subsidies

A third form of protectionism is government subsidies to domestic producers. Assume the US government provided a \$2,000 subsidy to American auto manufacturers for every car produced.

The effects of a protectionist subsidy:

- The domestic supply increases from S_d to $S_{d \text{ w/ subsidy}}$, a 'downward' shift of \$2,000
- The world price is still below the domestic price, so consumers will still pay the price P_w for cars. Producers receive P_{w+sub} (the world price plus the subsidy)
- Because of the increased supply, domestic output will increase from Q_1 to Q_2 .
- Imports will decrease from Q_1-Q_3 to Q_2-Q_3 .

The subsidy leads to more cars being produced domestically, and fewer cars being imported, making it a form of protectionism





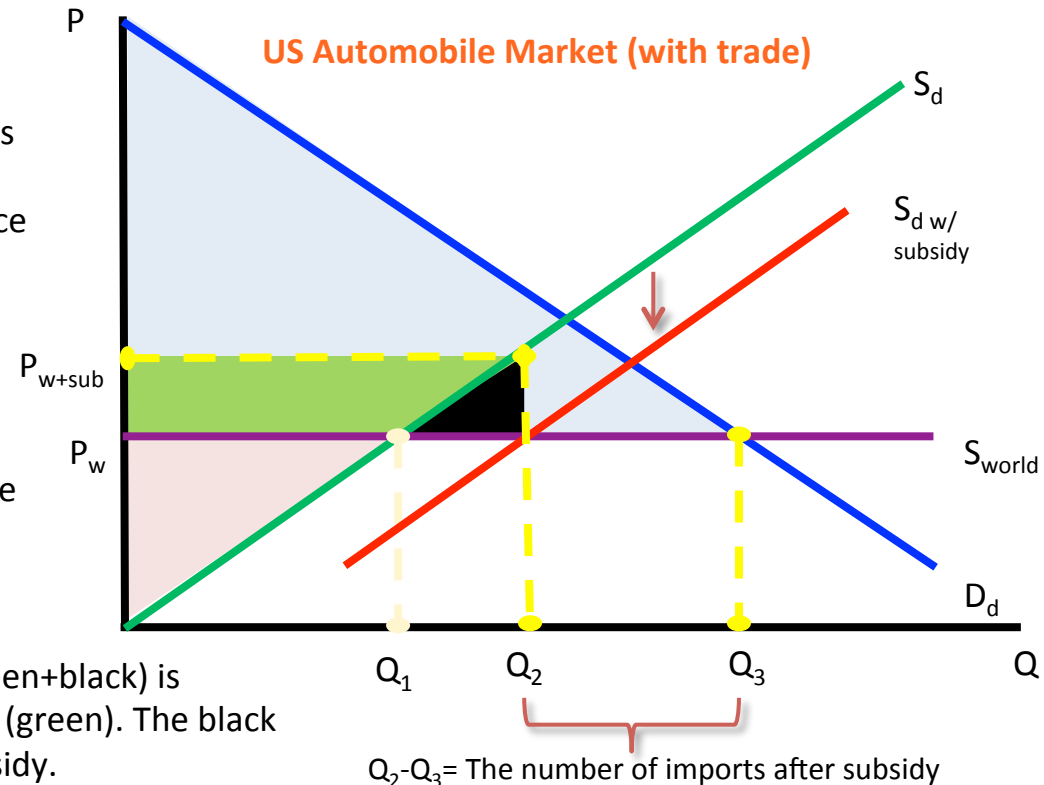
3.1 Free Trade and Protectionism

Protectionist Subsidies

From the previous slide, it appears at first glance that a protectionist subsidy will help domestic producers without harming domestic consumers (who still pay the world price). However, this conclusion is incomplete because it does not include *all stakeholders*.

Effect of a subsidy on all stakeholders

- **On car consumers:** No effect. The price is still P_w , they still buy Q_3 cars, and consumer surplus equals the blue, green and black areas.
- **On domestic producers:** They receive a higher price (P_{w+sub}) and produce a greater quantity (Q_2) so producer surplus increases to the red and green areas
- **On foreign producers:** They are clearly worse off; since fewer cars are imported, their revenues fall.
- **On taxpayers and the government:** The cost of the subsidy to taxpayers (the amount of the subsidy multiplied by the quantity of cars produced) is the green and black areas
- **On total welfare:** The total cost of the subsidy (green+black) is greater than the total increase in producer surplus (green). The black area is the loss of total welfare created by the subsidy.



Calculating the Effects of Protectionist Policies

Up to this point we have analyzed the general effects on consumers, producers, the government and taxpayers and total welfare of protectionist policies. But if we are given linear demand and supply equations, we can actually *calculate* the effects of these policies.

Assume domestic demand and supply of cars in the US are expressed as:

$$Q_d = 30,000 - 0.5P \text{ and } Q_s = -5,000 + 0.75P$$

- Assume the world price of cars is \$20,000
 - Domestic $Q_d = 30,000 - 0.5(20,000) = 20,000$ cars
 - Domestic $Q_s = -5,000 + 0.75(20,000) = 10,000$ cars
 - Quantity of imports $= 20,000 - 10,000 = 10,000$ cars

Now the US government grants a \$2,000 per car subsidy to US producers. The new supply equation is:

$$Q_s = -5,000 + 0.75(P + 2,000), \text{ or } Q_s = -3,500 + 0.75P$$

- At the world price of \$20,000, American carmakers will now make:
 - $Q_s = -3,500 + 0.75(20,000) = -3,500 + 15,000 = 11,500$ cars
 - The quantity demanded will still be 20,000 cars since P_w did not change
 - The new quantity of Imports $= 20,000 - 11,500 = 8,500$ cars

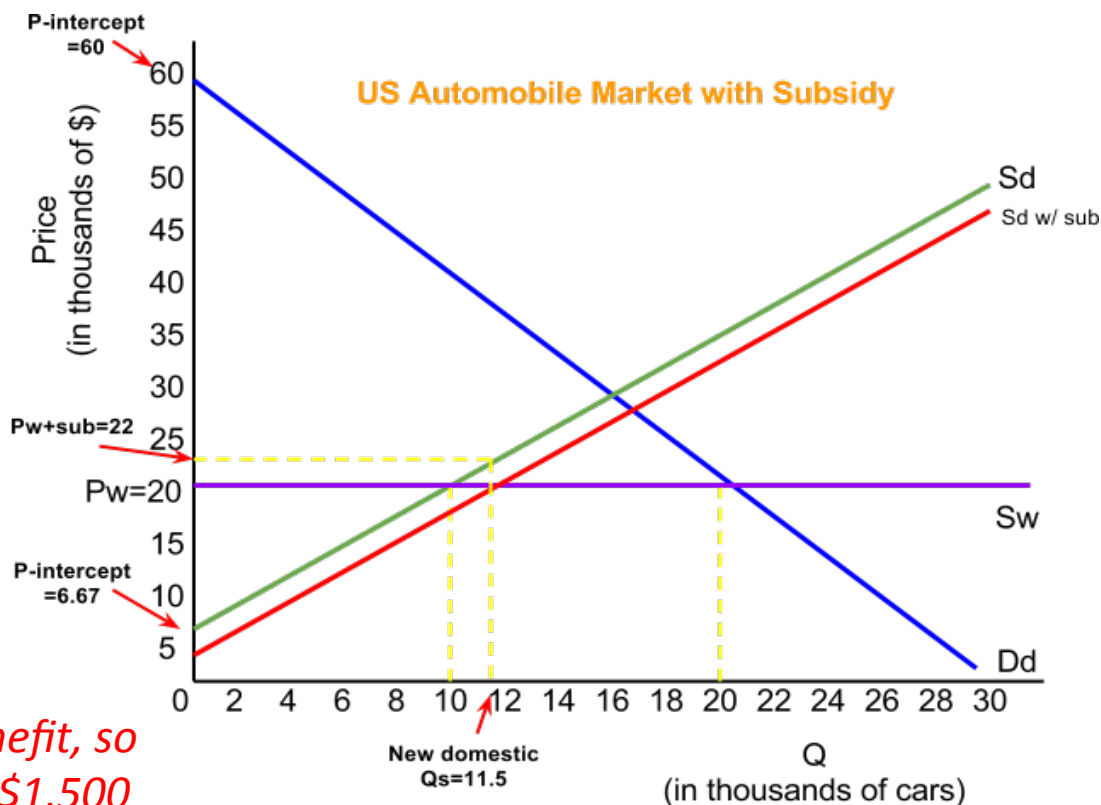
3.1 Free Trade and Protectionism

Calculating the Effects of Protectionist Policies

The effects of the protectionist subsidy can be graphed and calculated using the numbers on the graph. (The figures below are all in thousands):

Effects of the subsidy on all stakeholders

- **Consumer surplus** before and after subsidy:
 $(60 - 20) \times 20 / 2 = \mathbf{400}$
- **Producer surplus:**
 - Before: $(20 - 6.67) \times 10 / 2 = \mathbf{66.65}$
 - After: $(22 - 6.67) \times 11.5 / 2 = \mathbf{88.15}$
 - Increase: $88.15 - 66.65 = \mathbf{21.5}$
- **Foreign producer revenues:**
 - Before: $10 \times 20 = \mathbf{200}$
 - After: $8.5 \times 20 = \mathbf{170}$
- **Cost to taxpayers of subsidy:** $11.5 \times 2 = \mathbf{23}$
- **Loss of welfare** (the difference between the cost of the subsidy and the increase in producer surplus): $23 - 21.5 = \mathbf{1.5}$



The cost of the subsidy exceeds the benefit, so it has led to a loss of total welfare of \$1,500

3.1 Free Trade and Protectionism

*Protectionist Subsidies
Video Lesson*



[CALCULATING THE EFFECTS OF PROTECTIONIST SUBSIDIES](#)

Other forms of Protectionism

Besides tariffs, quotas and subsidies, there are other forms of protectionist measures a government can take to shelter domestic firms from foreign competition. These include:

Voluntary Export Restraints (VERs): an agreement between two nations to limit trade in particular commodities so that the producers in one nation can remain in business providing commodities to the domestic market, rather than be forced to compete with more efficient foreign producers.

Administrative obstacles: "the red tape" that governments may erect when free trade agreements limit the imposition of tariffs and quotas.

- May include overly burdensome quality controls, safety regulations, living-wage and other workplace standards to be met by foreign producers.
- If foreign producers cannot meet these standards, their products are forbidden from being sold domestically. May include environmental, health and safety standards.

DUMPING: *The act of a manufacturer in one country exporting a product to another country at a price which is either below the price it charges in its home market or is below its costs of production*

3.1 Free Trade and Protectionism

Evaluating
Protectionism



Arguments for and Against Protectionism

As can be seen in our analysis on the previous slides, protectionism always leads to a *loss of total welfare (or deadweight loss)* for in the protected industries. So why do countries still practice it? Here are some of the arguments for and against protectionism.

Arguments for:

Protection of domestic employment: More jobs in the export sector

Protection of infant industries: Allows young industries to grow under government protection until they can compete with foreign producers.

To prevent dumping: When foreign producers sell their output at below costs of production in domestic market

To enforce product standards: Protect consumers from low quality, unsafe imports

To raise revenue: Tariffs raise revenue for government, which could go towards providing public goods

To protect strategic industries: Defense, energy food; key industries may be best left to domestic producers

Arguments against:

Leads to a misallocation of resources: Too much of the protected good will be produced domestically, not enough by relatively efficient foreign producers

Could lead to a trade war: If trading partners retaliate with their own protections, even worse resource allocation will result.

Higher priced imports: In the case of quotas and tariffs consumers suffer from higher prices and some producers will have to pay more for imported raw materials.

Reduced competitiveness: Industries sheltered by protectionism will become less and less competitive over time, requiring even more protection and a greater loss of welfare.

3.1 Free Trade and Protectionism

Evaluating
Protectionism



Arguments for and Against Protectionism

Based on all our analysis, some broad conclusions can be made about most forms of protectionism. Ultimately, protectionism creates some winners and losers, but the cost to the losers exceeds the benefits to the winners. Protectionism...

Benefits: Domestic producers may benefit b/c they receive a higher price for their output. The federal government may gain through revenue from tariffs.

Harms: Consumers are harmed because they pay higher prices for goods produced by the protected industry. Foreign producers are hurt because they are not able to sell their as much of their output as they would be able to otherwise, so their profits are reduced.

Most Economists oppose protectionism: *In most cases, the costs of protectionism exceed the benefits. Consumers are hurt by the higher prices they pay, while producers often benefit less. Also, industry employs large amounts of economic resources in “rent-seeking” as they lobby congress to erect barriers to trade. In most cases, protectionism results in deadweight loss for society, meaning economic inefficiency.*

3.1 Free Trade and Protectionism

*Evaluating
Protectionism*



Arguments for and Against Protectionism

The links below go to videos in which the issues of free trade and protectionism are debated. Watch the videos, then consider the discussion questions at the bottom of the slide.

- [Make Trade Fair - by Oxfam:](#)
- [Joseph Stiglitz on globalization:](#)
- [Columbian FTA, why it's good for America](#)
- [Kenyans want trade not aid](#)
- [Lou Dobbs on the dangers of trade](#)
- [More Lou Dobbs with guest David Sirota](#)
- [Ambassador to Columbia on the Benefits of Free Trade](#)
- [Obama vs. McCain on Free Trade - 3rd Debate](#)

Discuss the following questions after watching each video:

1. What views on trade are expressed in the video?
2. Are there biases expressed by the people in the video? If so, what are they?
3. Evaluate the arguments for or against free trade made in the video.